

What is claimed is:

1. A fuel injection system for an internal combustion engine having an intake pipe equipped with a throttle valve, an upstream fuel injector provided upstream from the throttle valve and a downstream fuel injector provided downstream from the throttle valve, said fuel injection system comprising:

means for determining fuel injection quantities of the upstream and the downstream fuel injectors;

means for detecting an intake temperature TA on the upstream side from an injection area of the upstream fuel injector;

means for determining an intake temperature correction factor KTA on the basis of said intake temperature TA and the fuel injection quantity of one of the upstream and the downstream fuel injectors; and

means for correcting at least one of said fuel injection quantities of the upstream and downstream fuel injectors on the basis of said intake temperature correction factor KTA.

2. The fuel injection system for an internal combustion engine according to claim 1, wherein said intake temperature correction factor KTA is determined irrespective of said fuel injection quantity of the upstream fuel injector under a light load of the engine.

3. The fuel injection system for an internal combustion engine according to claim 1, wherein said intake temperature correction factor KTA becomes relatively high as the fuel injection quantity of the upstream fuel injector increases.

4. The fuel injection system for an internal combustion engine according to claim 1, wherein said intake temperature correction factor KTA is determined on the basis of said intake temperature TA and the fuel injection quantity of the upstream fuel injector.

5. The fuel injection system for an internal combustion engine according to claim 1, said means for determining said intake temperature correction factor KTA further comprises means for calculating a correction factor for a light load KTAL corresponding to the intake temperature TA, a correction factor for a heavy load KTAH corresponding to the intake temperature TA and a correction factor for upstream and downstream injection KTA2 corresponding to the intake temperature TA.

6. The fuel injection system for an internal combustion engine according to claim 4, said means for determining said intake temperature correction factor KTA further comprises means for calculating a correction factor for a light load KTAL corresponding to the intake temperature TA, a correction factor for a heavy load KTAH corresponding to the intake temperature TA and a correction factor for upstream and downstream injection KTA2 corresponding to the intake temperature TA.

7. The fuel injection system for an internal combustion engine according to claim 5, wherein when a throttle opening and an idle speed of the engine are less than a predetermined value, said intake temperature correction factor KTA will be set to said correction factor for a light load KTAL.

8. The fuel injection system for an internal combustion engine according to claim 6, wherein when a throttle opening and an idle speed of the engine are less than a predetermined value, said intake temperature correction factor KTA will be set to said correction factor for a light load KTAL.

9. The fuel injection system for an internal combustion engine according to claim 7, wherein when a throttle opening or an idle speed of the engine are greater than a

--14--

predetermined value, said intake temperature correction factor KTA will be adjusted, depending on said intake temperature TA and the fuel injection quantity of the upstream fuel injector.

10. A method of injecting fuel for an internal combustion engine having an intake pipe equipped with a throttle valve, an upstream fuel injector provided upstream from the throttle valve and a downstream fuel injector provided downstream from the throttle valve, said method comprising the steps of:

determining fuel injection quantities of the upstream and the downstream fuel injectors;

detecting an intake temperature TA on the upstream side from an injection area of the upstream fuel injector;

determining an intake temperature correction factor KTA on the basis of said intake temperature TA and the fuel injection quantity of one of the upstream and the downstream fuel injectors; and

correcting at least one of said fuel injection quantities of the upstream and downstream fuel injectors on the basis of said intake temperature correction factor KTA.

11. The method according to claim 10, wherein said intake temperature correction factor KTA is determined irrespective of said fuel injection quantity of the upstream fuel injector under a light load of the engine.

12. The method according to claim 10, wherein said intake temperature correction factor KTA becomes relatively high as the fuel injection quantity of the upstream fuel injector increases.

--15--

13. The method according to claim 10, wherein said intake temperature correction factor KTA is determined on the basis of said intake temperature TA and the fuel injection quantity of the upstream fuel injector.

14. The method according to claim 10, said means for determining said intake temperature correction factor KTA further comprises means for calculating a correction factor for a light load KTAL corresponding to the intake temperature TA, a correction factor for a heavy load KTAH corresponding to the intake temperature TA and a correction factor for upstream and downstream injection KTA2 corresponding to the intake temperature TA.

15. The method according to claim 13, said means for determining said intake temperature correction factor KTA further comprises means for calculating a correction factor for a light load KTAL corresponding to the intake temperature TA, a correction factor for a heavy load KTAH corresponding to the intake temperature TA and a correction factor for upstream and downstream injection KTA2 corresponding to the intake temperature TA.

16. The method according to claim 14, wherein when a throttle opening and an idle speed of the engine are less than a predetermined value, said intake temperature correction factor KTA will be set to said correction factor for a light load KTAL.

17. The method according to claim 15, wherein when a throttle opening and an idle speed of the engine are less than a predetermined value, said intake temperature correction factor KTA will be set to said correction factor for a light load KTAL.

18. The method according to claim 16, wherein when a throttle opening or an idle speed of the engine are greater than a predetermined value, said intake temperature

--16--

correction factor KTA will be adjusted, depending on said intake temperature TA and the fuel injection quantity of the upstream fuel injector